Classification: Electrical Engineer	**Position No.** 5400-3613-
CBID: R09	**Office:** Energy Systems Research
Date Prepared: **December, 2009**	**Division:** Energy Research and Development
KEY: (E) IS ESSENTIAL, (M) IS MARGINAL	

Under the direction and supervision of the Energy Commission Supervisor II (TED), the incumbent serves as part of an interdisciplinary team to plan and implement the Public Interest Energy Research (PIER) Program. The goal of the PIER Program is to conduct energy research, development and demonstration (RD&D) to advance science and technologies not adequately provided by the regulated and competitive markets. The incumbent will prepare or assist in the preparation of technical reviews and assessments of research, development, and demonstration projects associated with the implementation of smart grid projects and support research activities of the PIER Energy Systems Integration Research Team. The incumbent will assist in planning, organizing and making technical decisions on PIER-funded energy RD&D efforts related to the electrical design and specifications for smart grid technologies and distributed energy resources (DER), including distributed generation (DG), advanced power electronics technology, grid power flow analysis, and application of advanced communications and control systems to support micro-grids, renewable technology integration and electricity energy storage. The research focus will be on technology and engineering innovations integrating electrical energy technologies into the electric utility grid system. The incumbent will also assist in engineering and planning work on distribution systems and in preparing communication and controls strategies.

WORKING CONDITIONS. The work is performed in an indoor office and meeting room setting involving sitting, standing, and walking. The candidate must work well with people inside and outside the Energy Commission, including members of the general public. Travel is required to attend workshops, hearings and meetings. Additional hours beyond an eight-hour workday or forty-hour workweek may be required. While performing the duties described below, the incumbent will be required to work alone and/or in a team environment, using a personal computer and appropriate Energy Commission software such as word processing, electronic mail and Internet; and will participate in meetings with other staff and with other agencies.

DUTIES AND RESPONSIBILITIES:

50% Prepare or assist in the preparation of technical and engineering assessments and reviews of electrical demonstrations and research efforts for improvements to modern electrical equipment and apparatus used in energy efficient electrical systems. The incumbent will read, analyze and interpret the less complex plans, drawings, specifications and other technical information for the development and deployment of advanced smart grid technologies including Distributed Energy Resources and utility grid infrastructure technologies, micro-grids that contain some combination of DG, new power electronic system components, renewable technologies (such as photovoltaic, wind and hydro systems), energy storage technologies (such as flow batteries, ultra-capacitors, high speed flywheels, and compressed air systems), and will work under direction to evaluate their performance and energy efficiency improvements on existing electrical installations

and in proposed projects. Depending on the technology being addressed, the incumbent performs one or more less complex electrical engineering or engineering evaluations and/or reviews of electricity generation systems, transmission/distribution systems, communication systems or other electric control systems as they relate to smart grid and utility grid infrastructure. The evaluations and reviews will also include providing assistance in reviewing and assessment of the electrical power flow and grid electrical interconnections. This will include preparing or assisting in the preparation and review of material lists and requisitions material selection and specifications, performance and suitability of components, efficiency and economics of engineering design options, cost, and performance, and the RD&D requirements relating to the development and deployment of these technologies. The incumbent will analyze situations accurately and take an effective course of action. The incumbent will provide technical assistance to commission contract managers and other staff in analyzing the less difficult engineering problems, and prepare written reports. The incumbent will evaluate electrical delivery systems (distribution or transmission) performance and energy efficiency improvements from a state-wide strategic perspective and provide RD&D planning assistance to the Energy Systems Integration Team Leader and team members. Participate in conducting field surveys, site visits and inspections of PIER funded smart grid demonstrations to ensure field systems comply with electrical requirements and engineering specifications in PIER contracts that include: electrical codes, building standards, CEQA requirements, and other required general engineering codes, standards or directives. Reviews electrical, engineering and system performance data collected at DER field and laboratory demonstrations to ensure system performance meets or exceeds specific electrical, engineering and overall system performance specifications defined in PIER contracts. (E)

25% Planning, Specifying and Estimating. The incumbent prepares or assist in the preparation of research project plans, specifies research project tasks and estimates research budgets for research projects on the smart grid electric delivery system including distributed energy resources, and signal and control systems. The incumbent will analyze and evaluate the less difficult research plans, specifications and estimates to meet various electrical codes, safety orders and regulations governing the design and installation of electrical equipment and apparatus, and other similar power installations. The incumbent will have knowledge of Electrical theory and practice as they relate to the installation of modern electrical equipment and systems onto the utility electric grid. (E)

15% The Incumbent will prepare or assist in the preparation of funding and contract agreement documents; establish and maintain technical and business relationships with contractors, provide guidance as needed; monitor progress and identify possible changes in research direction; initiate and approve contract amendments; receive and review monthly progress reports and prepare or assist in the preparation of evaluations and electrical engineering assessments of the project; verify all contract terms and conditions have been met before approving invoices ; conduct technical reviews and engineering specification reviews of the work conducted by the contractor; work with the contractor and make project site inspections to ensure the project meets technical, fiscal, and administrative objectives; participate in briefing office, division, and commission management on the status of the project. The incumbent will analyze or assist in the analysis of proposals to determine how well the project addresses the scope of the solicitation criteria including, but not limited to: the extent the project will advance science or technology, address market issues and needs, meet specified target goals and objectives; the skill and experience of the project team to perform the technical tasks within the budget and schedule, the ability to move the

results into the marketplace; and the adequacy of project funding. The incumbent prepares written findings of such evaluations for use by a technical scoring committee. (E)

5% Consult and maintain cooperative relations with stakeholders including research organizations; state, federal and local government and utility representatives; private developers and technical experts to identify research and development opportunities of alternative and advanced energy systems or technologies in California. Implement projects that provide significant public benefits to California and meet the policy and technical objectives of the PIER Program. (E)

5% Perform other duties as required consistent with the classification's specification. (M)

SIGNATURES	
I Certify That I Am Able To Perform, With Or Without The Assistance Of A Reasonable Accommodation, The Essential Job Duties Of This Position	
Employee Date Electrical Engineer	Pedro F. Gomez Date Energy Commission Supervisor II